

New species of the genus *Eupoecilia* Stephens, 1829 from Indonesian New Guinea (Lepidoptera: Tortricidae, Tortricinae, Cochylini)

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Abstract: Six species in the genus *Eupoecilia* Stephens, 1829 are discussed. Six species were collected during several surveys in Papua and Papua Barat, Indonesia, one species was collected in Malaysia. Five species are new to science: *Eupoecilia walmakana* **spec. nov.**, *E. aculeasana* **spec. nov.**, *E. chrysocaputana* **spec. nov.**, *E. arfakana* **spec. nov.** and *E. iddifakana* **spec. nov.** Additional information is given about *E. tenggerensis* (Diakonoff, 1949). Of all species the adults and genitalia are depicted.

Rangkuman: Enam spesies dari genus *Eupoecilia* Stephens, 1829 didiskusikan disini. Enam spesies dikoleksi pada saat melakukan beberapa survei di Papua dan Papua Barat, Indonesia, satu spesies di koleksi di Malaysia. Lima spesies adalah spesies baru untuk sains: *Eupoecilia walmakana* **spec. nov.**, *E. aculeasana* **spec. nov.**, *E. chrysocaputana* **spec. nov.**, *E. arfakana* **spec. nov.** dan *E. iddifakana* **spec. nov.** Tambahan informasi diberikan untuk *E. tenggerensis* (Diakonoff, 1949). Semua spesies dewasa dan alat genitalianya dideskripsi dengan gambar. [translation by Daawia Suhartawan]

Keywords: Papua, Papua Barat, New Guinea, Indonesia, Oriental, Cochylini, new species.

Introduction

Worldwide 39 species of the genus *Eupoecilia* Stephens, 1829 are known. The genus is distributed in the Palearctic, Oriental and African region. During surveys, between 2005 and 2014 to the Indonesian provinces Papua and Papua Barat, several specimens of this genus were collected at localities in the Central Highlands, Star Mountains and Arfak Mountains. In the RMNH collection additional material of *E. tenggerensis* (Diakonoff, 1949) from Malaysia was found. The newly discovered species *E. walmakana* **spec. nov.**, *E. chrysocaputana* **spec. nov.**, *E. arfakana* **spec. nov.** and *E. iddifakana* **spec. nov.** are externally rather similar to *E. tenggerensis*, *E. neurosema* (Meyrick, 1938) and *E. dactylota* (Diakonoff, 1952). Study of the genitalia is necessary for separating these species. *Eupoecilia aculeasana* **spec. nov.** is described from one male and one female.

Materials and methods

Specimens were collected with light traps at the several localities. The material was relaxed, pinned and prepared. From all species the genitalia were dissected and mounted on glass slides in Euparal. Photographs of the moths were made with a Nikon D5100 camera, using a Nikon Micro-Nikkor 40 mm lens with 20 mm extension. Genitalia photographs were made with an Olympus triocular microscope and a MDC320 digital camera.

Collected material is deposited in the RMNH collection (holotypes and additional specimens) and the private collection of the author (additional specimens only). The nomenclature follows T@rts Online World Catalogue of the Tortricidae (2020).

The wingspan of the moths is mentioned in millimeters.

Abbreviations

FG – Acronym for slide numbers, made by the author

GNL - Private Collection Frans Groenen, Bergeijk, The Netherlands

RMNH – Collection of Naturalis Biodiversity Center, Leiden, The Netherlands (former Rijksmuseum voor Natuurlijke Historie)

RMNH.INS. – Acronym for unique collection numbers of specimens and slides in RMNH

Systematical part

Eupoecilia aculeasana spec. nov. (figs 1-2, 8, 12)

urn:lsid:zoobank.org:act: BD116C8A-B488-41AA-B1D6-CEBB94FD78D4

Holotype: RMNH.INS.1282999: ♂, Indonesia, Papua, Kecamatan Nipsan, Walmak, 4°07'S – 138°36'E, 1710 m, 31.i-09.ii.2005, leg. UNCEN-ZMA expedition Papua Indonesia 2005, slide FG3887.

Paratype: RMNH.INS.1283000: 1 ♀, Indonesia, Papua, Kecamatan Abenaho, Pass Valley, 1950 m, 3°51'S – 139°05'E, 11-25.ii.2005, at light, disturbed mountain forest, leg. UNCEN-ZMA expedition Papua Indonesia 2005, slide FG3361.

Diagnosis: Rather broad winged species with a large circular dot in apical half of forewing. The wingpattern of *E. aculeasana spec.nov.* is similar to *E. scythalephora* (Diakonoff, 1952) but both taxa are most likely not conspecific. He described and figured the female genitalia from a specimen collected at Lake Habbema, 3250-3300 m, August 20, 1938. In 1984 he figured the female holotype genitalia again but quite different, more elaborate and stronger magnified. The female genitalia are similar to those of *E. wegneri* (Diakonoff, 1941) but differs in the structures of the sclerites in the ductus bursae. The dentate cornutus in the male aedeagus is characteristic.

Description: ♂ 13 mm, ♀ 15 mm. The male holotype is rather worn. Head cream coloured. Labial palpi two times diameter eye, cream coloured. Thorax and tegulae brown. Forewing elongate, costa and dorsum straight, termen oblique. Cream coloured apical part overlaid with brown. Costa in basal half marbled with brown, in apical half three small brown spots, apex brown. Median band brown and oblique. Fringes cream coloured, medially with some black tipped scales. Hindwing rather slender, upperside at base of costa with a bundle of modified scales, shining cream coloured. Underside at base of costa with a small fold. Fringes shining cream coloured. Abdomen brown.

Female with head and tegulae cream coloured. Labial palpi about two times diameter eye. Forewing slightly broadening towards termen, cream coloured. Costa and dorsum straight, termen oblique. Apical part of wing with a large circular brown dot. Costa in basal half marbled with brown, in apical half three small brown spots, apex brown. Median band

oblique, brown. Fringes shining cream coloured. Hindwing broad, shining white to yellowish. Fringes same colour. Abdomen brown.

Male genitalia: Tegumen triangle-shaped. Socii short, hooked, distally haired. Transtilla broad, central part broadly triangle-shaped, apex with two rows of spines. Valva broad at base, strongly tapering towards cucullus. Sacculus prominent, with large spines at dorsum of sacculus. Aedeagus broad and tubular-shaped, one longitudinal triangular cornutus present. Carinal plate with three strong curved teeth.

Female genitalia: Ovipositor moderate. Apophyses posterior shorter than apophyses anterior. Sterigma broad, posterior with a distinct circular and spined sclerite. Lamella antevaginalis consisting of two teardrop-shaped lobes which are strongly spined. Ductus bursae distally with a band of longer spines, remaining part sclerotized. Corpus bursae globular with numerous spines, in the middle forming a band, centrally with an area of longer spines, caudally with a small irregular shaped plate.

Distribution: The holotype was collected in the village Walmak (District Nipsan) at an altitude of 1710 meter. The female paratype was found in the village Pass Valley (District Abenaho) at an altitude of 1950 meter. Both localities are in the Jayawijaya Mountains (Papua, Indonesia) approximately 80 km separated.

Etymology: The name *aculeasana* refers to the spined (= aculeatus) sacculus in the male genitalia.

***Eupoecilia chrysocaputana spec. nov.* (figs 3, 13)**

urn:lsid:zoobank.org:act: B9E76A54-662C-4E4C-9FE5-5EF00ABB1FD1

Holotype: RMNH.INS.1283001: ♀, Indonesia, Papua, Kecamatan Abenaho, Pass Valley, 1950 m, 3°51'S – 139°05'E, 11-25.ii.2005, at light, disturbed mountain forest, leg. UNCEN-ZMA expedition Papua Indonesia 2005, slide FG3364.

Diagnosis: The robust general appearance, the golden-yellow head and the brown hind wings are characteristic.

Description: ♀ 15 mm. Head and palpi golden-yellow. Labial palpi about 2 times diameter eye. Thorax and tegulae dark brown. Forewing slightly broadening distally, costa slightly curved, apex sharp, termen oblique, dorsum straight. Basal part of forewing yellowish, apical part cream. Costa brown to median band, in apical half with some brown dots. Median band straight, broader at costa and dorsum, brown. Apical half of wing with scattered brown scales, mainly near termen. Fringes cream coloured with a darker fringe line. Hindwing brown. Fringes same coloured. Abdomen brown.

Male unknown.

Female genitalia: Ovipositor moderate. Apophyses posterior half length of apophyses anterior. Sterigma broad, posterior with an indistinct semicircular sclerite. Lamella antevaginalis consisting of two subtriangular lobes. Ductus bursae distally with a sinuate

band-like sclerite, followed at the left side by a triangular plate and at the right side by a folded area, in caudal half of ductus a spined sclerotization present. Ductus seminalis originates at two-third of ductus at the right side. Corpus bursae semi-oval, spined, in the centre with a circle of spines, caudally with an oval sclerotized plate.

Distribution: Holotype was found in the the village Pass Valley in the Jayawijaya Mountains, Papua, Indonesia.

Etymology: The name *chrysocaputana* refers to the golden coloured head and palpi (chrysos = gold, caput = head).

Eupoecilia walmakana spec. nov. (figs 4, 9, 14)

urn:lsid:zoobank.org:act: 26E88CD0-AEEF-4F92-A305-68861A36183C

Holotype: RMNH.INS.1283002: ♂, Indonesia, Papua, Kecamatan Nipsan, Walmak, 4°07'S – 139°36'E, 1710 m, 24-29.x.2008, leg. R. de Vos & P.J. Zumkehr, slide FG3358.

Paratypes (8 ♂♂, 3 ♀♀): RMNH.INS.1283003 & 1283005: 1 ♂, 1 ♀, same as holotype, (♂ slide FG3355; ♀ slide FG3354); RMNH.INS.1283004: 1 ♂, Indonesia, Papua, Star Mountains, Manunggal (1 km E Abmisibil), 2050 m, 4°40'S – 140°34'E, 29.i-9.ii.2005, at light, disturbed mountain forest, slide FG3356; RMNH.INS.1283006-1283009: 4 ♂♂, Indonesia, Papua, Jayawijaya Mts, Kab. Yahukimo, Nipsan District, Walmak, 1710 m, 4°07' S – 139°38' E, 31.i-9.ii.2005, at light, UNCEN-ZMA expedition 2005; RMNH.INS.1283010: 1 ♀, Indonesia, Papua, Central Highlands, Kecamatan Abenaho, Pass Valley, 1950 m, 3°51' S – 139°05' E, 11-17.ii.2005, at light, UNCEN-ZMA expedition Papua Indonesia 2005; GNL: 2 ♂♂, 1 ♀, Indonesia, Papua, Walmak, Kab. Yahukimo, Nipsan District, Jayawijaya Mts, 1710 m, 4°07' S – 139°38' E, 20-25.ix.2011, at light, leg. F. Groenen, ♂ slide FG2849.

Diagnosis: The brown apical dot at the forewing, the upturned caudal angle of the sacculus in the male genitalia and the prominent "V"-shaped antrum in the female genitalia are characteristic for this species.

Description: 13 mm. Head, thorax and tegulae cream coloured. Labial palpi about 1.5 times diameter eye. Forewing slightly broadening, costa slightly sinuate, termen oblique, dorsum straight. Forewing cream coloured, costa brownish to median band, three brownish spots in apical part of costa, dividings brown. Median band outwardly curved, brown. Apical part of wing more brownish overlaid, a few black dots present. Apical dot black. At dorsum a small triangular spot. Underside wing grey, between vein A1+2 and dorsum white. Fringes same coloured as wing with a darker fringe line.

Hindwing at costa with a bundle of yellowish modified scales, fitting into white area at underside forewing, semi-translucent, darker marginally. Fringes whitish, apical area black, with a darker fringe line. Abdomen grey-brown, anal tuft yellowish.

Male genitalia: Tegumen short, triangular. Socii long and slender, broader basally, haired. Transtilla broad, central part broad at base, triangular shaped in distal part, uncus with thorns. Valva broad basally, distally gradually narrowing, in middle a longitudinal band of long haire. Sacculus to two-third of valva, dorsally dentated, top curved and spined.

Aedeagus short and broad, carinal plate at opening curved, without teeth. Vesica with four robust cornutal thorns and a large group of small spines, and a large scobinated field.

Female genitalia: Ovipositor moderate. Apophyses posterior and anterior equally sized. Sterigma broad, posterior with a dentate sclerite. Ostium with a prominent irregular “V”-shaped and spined structure. Ductus bursae broad, distally at left side with larger spines, caudally with smaller spines, and overall wrinkled and pledged. Corpus bursae spined, except for a caudal area at the right side where a few larger spines are present.

Distribution: Found in the Star Mountains and Jayawijaya Mountains in the Central Mountain Range in Papua, Indonesia at altitudes between 1710 and 2050 meter.

Etymology: The name of the species refers to the village Walmak where the holotype has been collected.

***Eupoecilia arfakana* spec. nov.** (figs 5, 10, 15)

urn:lsid:zoobank.org:act: 6371ED84-30A3-4229-AEB5-4C229E153368

Holotype: RMNH.INS.1283011: ♂, Indonesia, Papua Barat, Birdshead Peninsula, Arfak Mountains, Mokwam, 1510 m, 1°06′S – 133°54′E, 6-10.xi.2011, at light, leg. Papua Insects Foundation, slide FG3359.

Paratypes (18 ♂♂, 7 ♀♀): RMNH.INS.1283012-1283020: 7 ♂♂, 2 ♀♀, same as holotype, (♀ slide FG3360); GNL: 5 ♂♂, 3 ♀♀, same locality as holotype, 21-24.x.2014, leg. F. Groenen (slides ♂ FG2840, ♀ FG2847, ♀ FG2848); GNL: 6 ♂♂, 2 ♀♀, Indonesia, Papua Barat, Arfak Mts, Demaisi, 1645 m, 1°10′S – 133°53′E, 24-26.x.2014, at light, leg. Papua Insects Foundation, F. Groenen, slide ♂ FG2851.

Diagnosis: The cream coloured hind wing in the male and the teardrop-shaped socii in the male genitalia are characteristic. The female is characterized by the thin circular sclerite in the corpus bursae. Differs from *E. neurosema* Meyrick, 1938 in the number of cornuti and the shape of the termination of the aedeagus.

Description: ♂ 13 mm, ♀ 14 mm. Head and palpi yellow. Labial palpi about 2 times diameter eye. Thorax and tegulae dark grey brown. Forewing straight, dorsum parallel with costa, costa in apical area slightly convex. Base of forewing yellow coloured to median band, costa in basal half with numerous black dashes. Median band straight, brown, basal rim dark edged. Apical half of wing brownish. A dot of black scales at distal end of cell present. In female near termen with two small darker lines. Fringes cream coloured with a darker fringe line. Hindwing of male shining cream coloured, in basal half hyaline, scarcely covered with black scales. Veins darker. At costa a row of yellow modified scales, partly covering a field of modified black scales between costa and vein Sc+R1. Female without modified scales, shining cream overlaid with fuscous scales. Fringes cream coloured with a darker fringe line.

Male genitalia: Tegumen triangular shaped, short. Uncus haired, apex with two minute lobes. Socii very slender, curved. Transtilla arms slender, central part triangle, terminal part slender, spined. Valva basally broad, gradually tapering apically, in middle a longitudinal

band of long hairs. Sacculus two-third of valve length, caudally rounded, dorsally with a few thorns. Aedeagus a simple short tube. Vesica with four strong cornuti in a row and at base with one slender cornutus and with a large scobinated field. Carinal plate sinuous without teeth.

Female genitalia: Ovipositor moderate. Apophyses posterior shorter than apophyses anterior. Sterigma broad, posterior with a sinuate band, laterally with two spined lobes. Ductus bursae distally with small rectangular sclerite, laterally a large sclerite to half length of ductus, opposite of this sclerite a group of long and slender sclerites reaching origin of ductus seminalis. Caudal part of ductus strongly spined, reaching into corpus bursae. Corpus bursae widely spined except for caudal area which is bordered by a thin sclerotized ring. In the centre of this ring a group of longer spines.

Distribution: Found in the northern Arfak Mountains, Papua Barat, Indonesia at altitudes of 1500-1650 meter.

Etymology: The name of this species refers to the Arfak Mountains, Papua Barat, Indonesia, where the types have been found.

Eupoecilia iddifakana spec.nov (figs 6, 11)

urn:lsid:zoobank.org:act: 9CF2E2DD-478F-4B5B-AAB3-139C28C9929A

Holotype: RMNH.INS.1283021: ♂, Indonesia, Papua, Kecamatan Nipsan, Walmak, 4°07'S – 139°36'E, 1710 m, 31.i-09.ii.2005, at light, leg. UNCEN-ZMA expedition Papua Indonesia 2005, slide FG3362.

Paratypes (4 ♂♂): RMNH.INS.1283022, 1 ♂, same as holotype; GNL: 3 ♂♂, same locality as holotype, 20-25.ix.2011, leg. F. Groenen, slides FG2850, FG2854.

Diagnosis: The irregular edged and oblique median band, the brownish coloured hind wings in combination with the presence of a strongly hook-shaped cornutus and the sawteeth carinal plate of the aedeagus are characteristic for this species and distinguishes it from the similar *E. arfakana* (see above). Dissection of the genitalia is necessary for separating both species.

Description: ♂ 13 mm. Head and palpi yellow. Labial palpi about 2 times diameter eye. Thorax and tegulae dark grey brown. Forewing straight, dorsum parallel with costa, in apical area slightly convex. Forewing basally yellow coloured to median band. Costa in basal half with numerous black dashes. Median band straight at innerside, distal irregular and oblique, brown. Apical half of wing brownish. A dot of black scales at distal end of cell present. Near termen some scattered dark brown scales. Fringes cream coloured with a darker fringe line. Hind wing brownish, in basal half hyaline, scarcely covered with black scales. Veins darker. At costa a row of yellow modified scales, partly covering a field of modified black scales between costa and vein Sc+R1. Fringes brown with a darker fringe line. Female unknown.

Male genitalia: Tegumen short. Uncus bifurcate, haired. Socii hooked, haired at the apex. Transtilla arms with broader triangular plate near centre, slender, terminal part slender, laterally with spines. Valva basally broad, tapering apically, in middle a longitudinal band of long hairs. Sacculus two-third of valve length, dorsally with one prominent and a few indistinct thorns. Aedeagus short, distally tapering, carinal plate long and with sawteeth. Vesica with one straight and one strongly hook-shaped cornutus in distal half, a third slender cornutus present at base.

Distribution: Found in the Jayawijaya Mountains, Papua, Indonesia, at an altitude of about 1700 meter.

Etymology: The name *iddifakana* (id(em) + di(to) + (ar)fakana) refers to external similarity with *E. arfakana* **spec. nov.**

***Eupoecilia tenggerensis* (Diakonoff, 1949)** (figs 7, 16)

Clysiana tenggerensis Diakonoff, 1949a: *Bijdragen tot de Dierkunde* 30: 133.

Additional material examined: RMNH.INS.1283024-1283026: 2 ♀♀, 1 gender unknown (abdomen lost), Malaysia, Sabah, Gunung Kinabalu, Sayap, 1000 m, 06°10'N – 116°34'E, 11-25.ii.2005, Gua Melayu Trail, clearing in primary forest, 12.iii.2001 (1 ♀), 13.iii.2001 (1 ♀, 1 gender unknown), leg. J.P & M.J. Duffels, slide ♀ FG3363.

Diagnosis: This species is separated by the tapering median band at the forewing in combination with the incised ductus bursae and circular situated spines in the corpus bursae.

Description: ♀ 11-14 mm. Head, thorax, tegulae and palpi cream coloured. Labial palpi about 2 times diameter eye.

Forewing straight, costa parallel to dorsum, costa in apical area slightly convex, yellow colored, in apical part more brown. Costa in basal half dark brown. Median band broad at costa and tapering towards dorsum, innerside concave, distally oblique. Apical third of wing more brownish with a darker apical dot. Fringes same coloured as apical third of wing.

Hindwing brownish with a dark brown apical dot. Fringes brown with a darker subbasal line.

Female genitalia: Ovipositor moderate. Apophyses posterior and apophyses anterior of equal size. Sterigma broad, posteriorly indicated by an interrupted band, anteriorly by two triangular bands. Ductus bursae broad in basal half and in distal half incised, in basal half with scattered short spines and in distal half numerous with long vertical spines. Ductus seminalis membranous. Corpus bursae globular, with exteriorly a circle of spines, median with some scattered spines and central a group of longer spines.

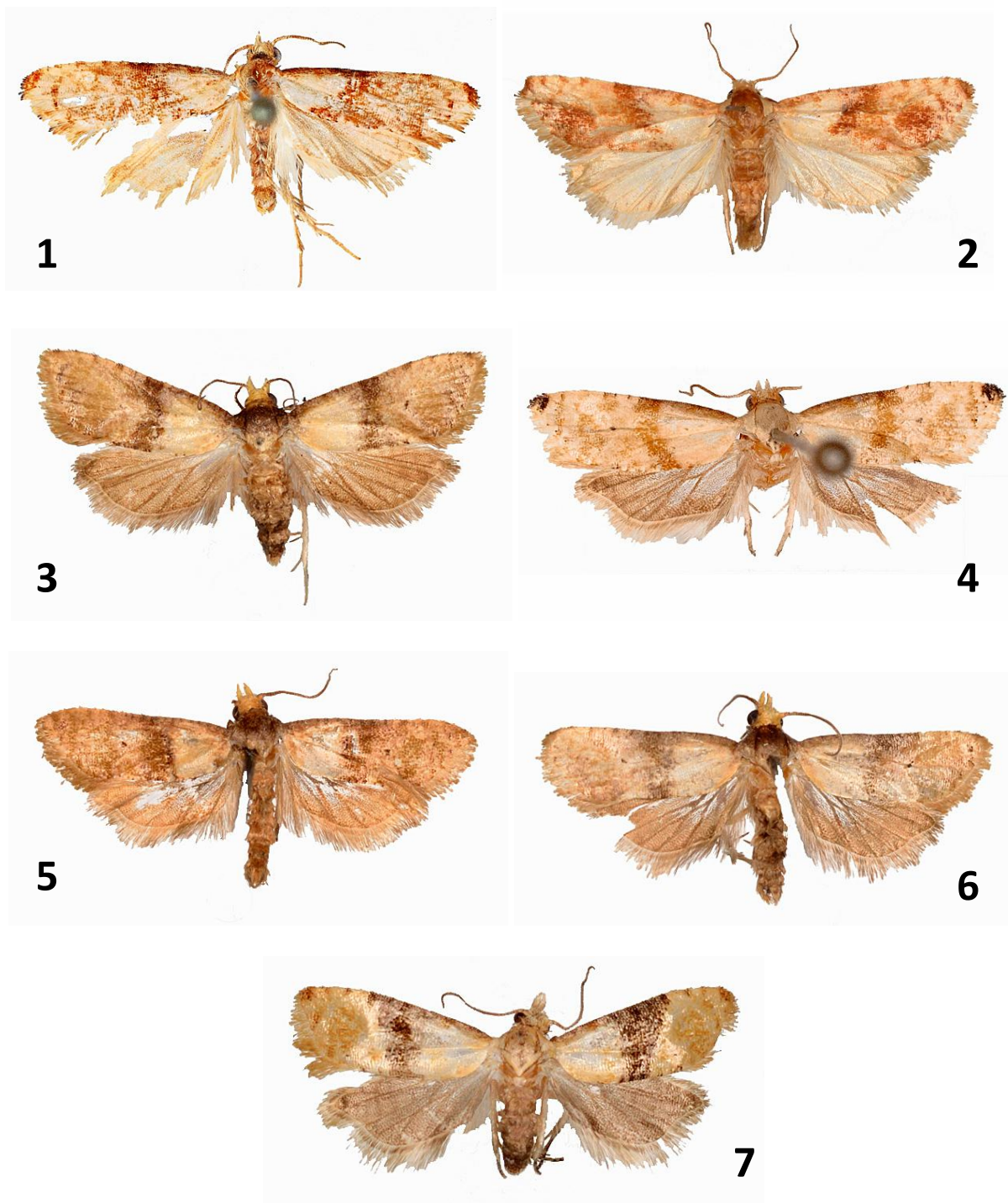
Distribution: Java (Indonesia), Sabah (Malaysia) (Razowski, 1968; Diakonoff, 1949a; 1984).

Acknowledgements

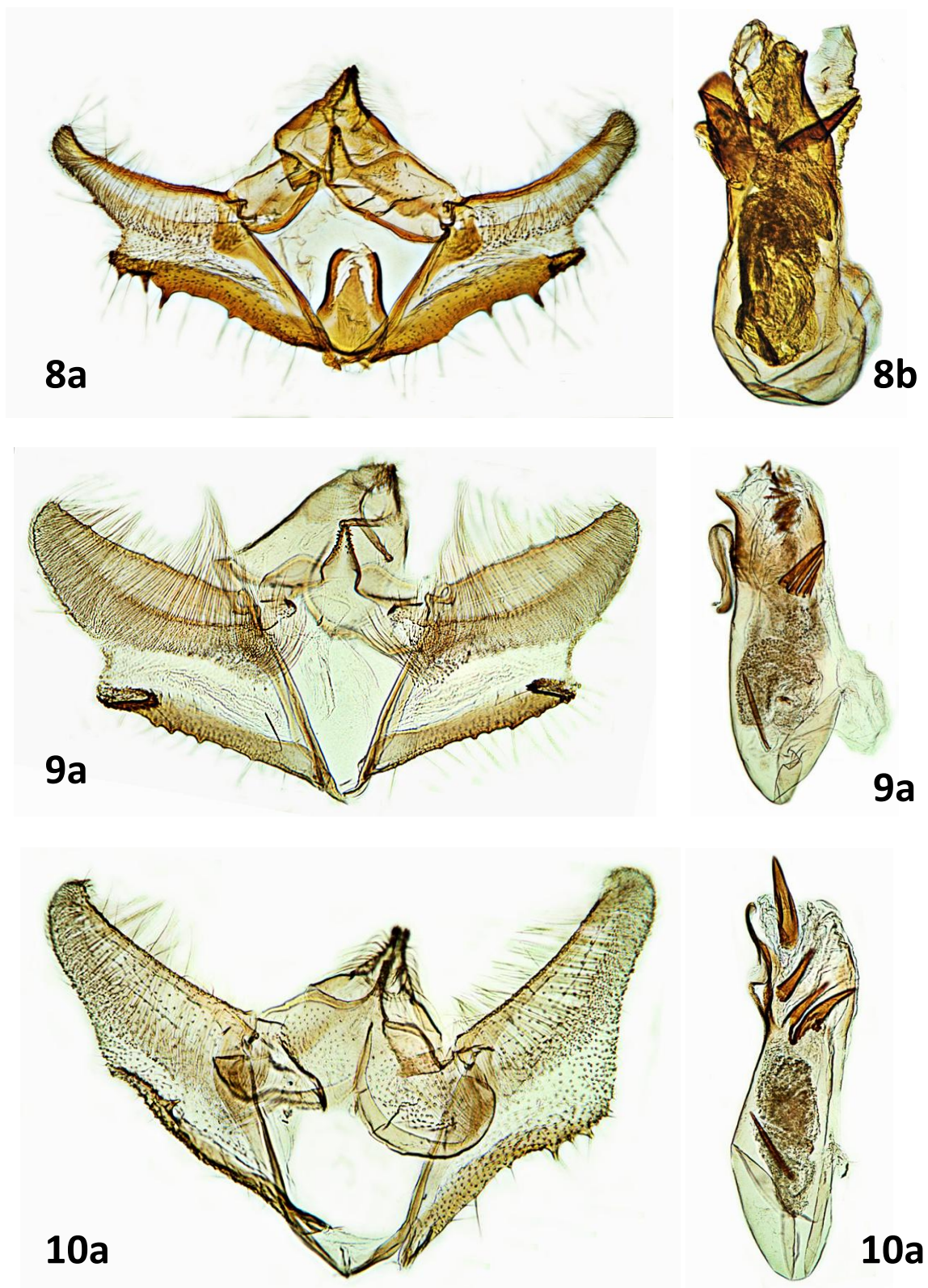
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Figs 1-7. Adults of *Eupoecilia* species. **1.** *Eupoecilia aculeasana* **spec. nov.** ♂ holotype, RMNH.INS.1282999; **2.** *E. aculeasana* **spec. nov.** ♀ paratype, RMNH.INS.1283000; **3.** *E. chrysocaputana* **spec. nov.** ♀ holotype, RMNH.INS.1283001; **4.** *E. walmakana* **spec. nov.** ♂ holotype, RMNH.INS.1283002; **5.** *E. arfakana* **spec. nov.** ♂ holotype, RMNH.INS.1283011; **6.** *E. iddifakana* **spec. nov.** ♂ holotype, RMNH.INS.1283021; **7.** *E. tenggerensis* (Diakonoff, 1949) ♀, RMNH.INS.1283024.



Figs 8-10. Male genitalia of *Eupoecilia* species, a. genital armature, b. aedeagus: **8.** *Eupoecilia aculeasana* **spec. nov.**, prep. FG3887; **9.** *E. walmakana* **spec. nov.**, prep. FG3358; **10.** *E. arfakana* **spec. nov.**, prep. FG3359.

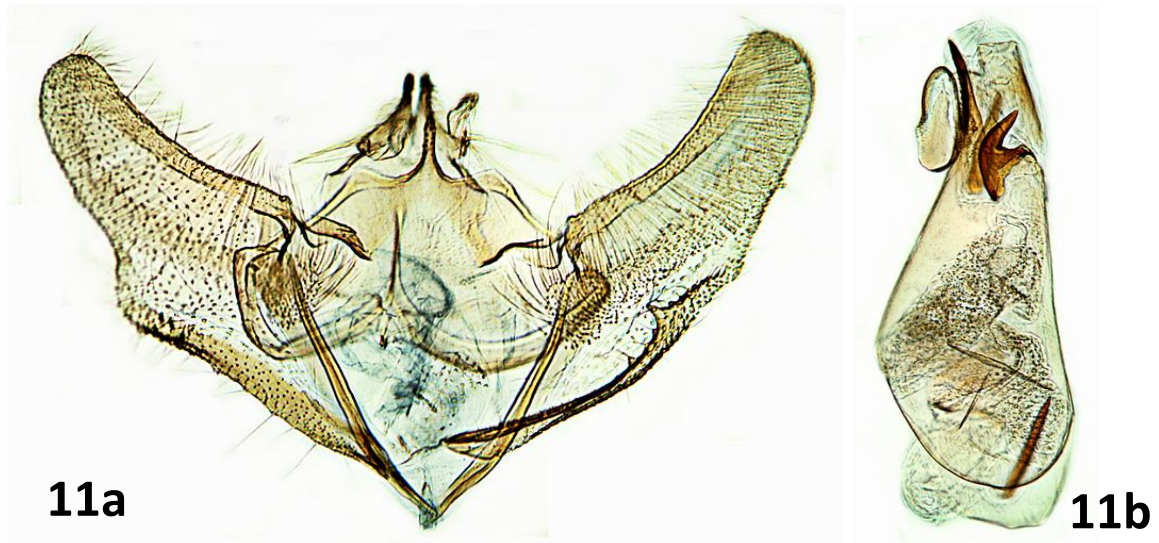
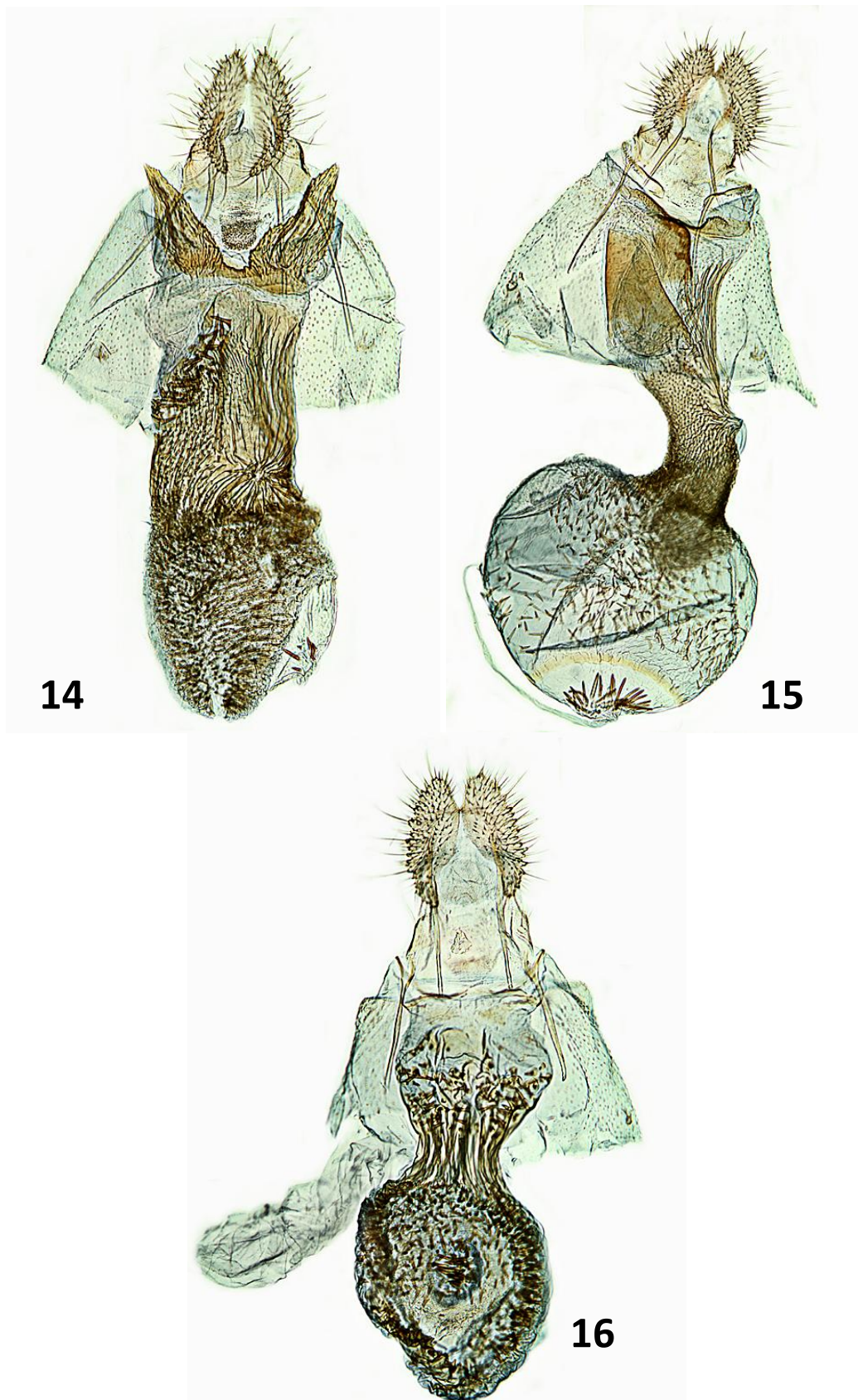


Fig. 11. Male genitalia of *Eupoecilia iddifakana* **spec. nov.**, prep. FG3362: a. genital armature, b. aedeagus.



Figs 12-13. Female genitalia of *Eupoecilia* species: **12.** *Eupoecilia aculeasana* **spec. nov.**, prep. FG3361; **13.** *E. chrysocaputana* **spec. nov.**, prep. FG3364.



Figs 14-16. Female genitalia of *Eupoecilia* species: **14.** *Eupoecilia walmakana* **spec. nov.**, prep. FG3354; **15.** *E. arfakana* **spec. nov.**, prep. FG3360; **16.** *E. tenggerensis* (Diakonoff, 1949), prep. FG3363.